

# Air Force Research Laboratory

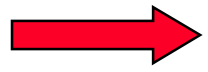


## Science and Technology Workforce for the 21<sup>st</sup> Century (STW-21)

*Maj Gen Dick Paul*  
*Commander*



# PURPOSE



- **AFRL Overview**
- **Synopsise findings and recommendations of the STW-21 study**
- **Discuss AFRL implementation activities**



# **OUR VISION AND MISSION**

## **AIR FORCE MISSION**

***TO DEFEND THE UNITED STATES THROUGH CONTROL  
AND EXPLOITATION OF AIR AND SPACE***

## **AIR FORCE RESEARCH LABORATORY MISSION**

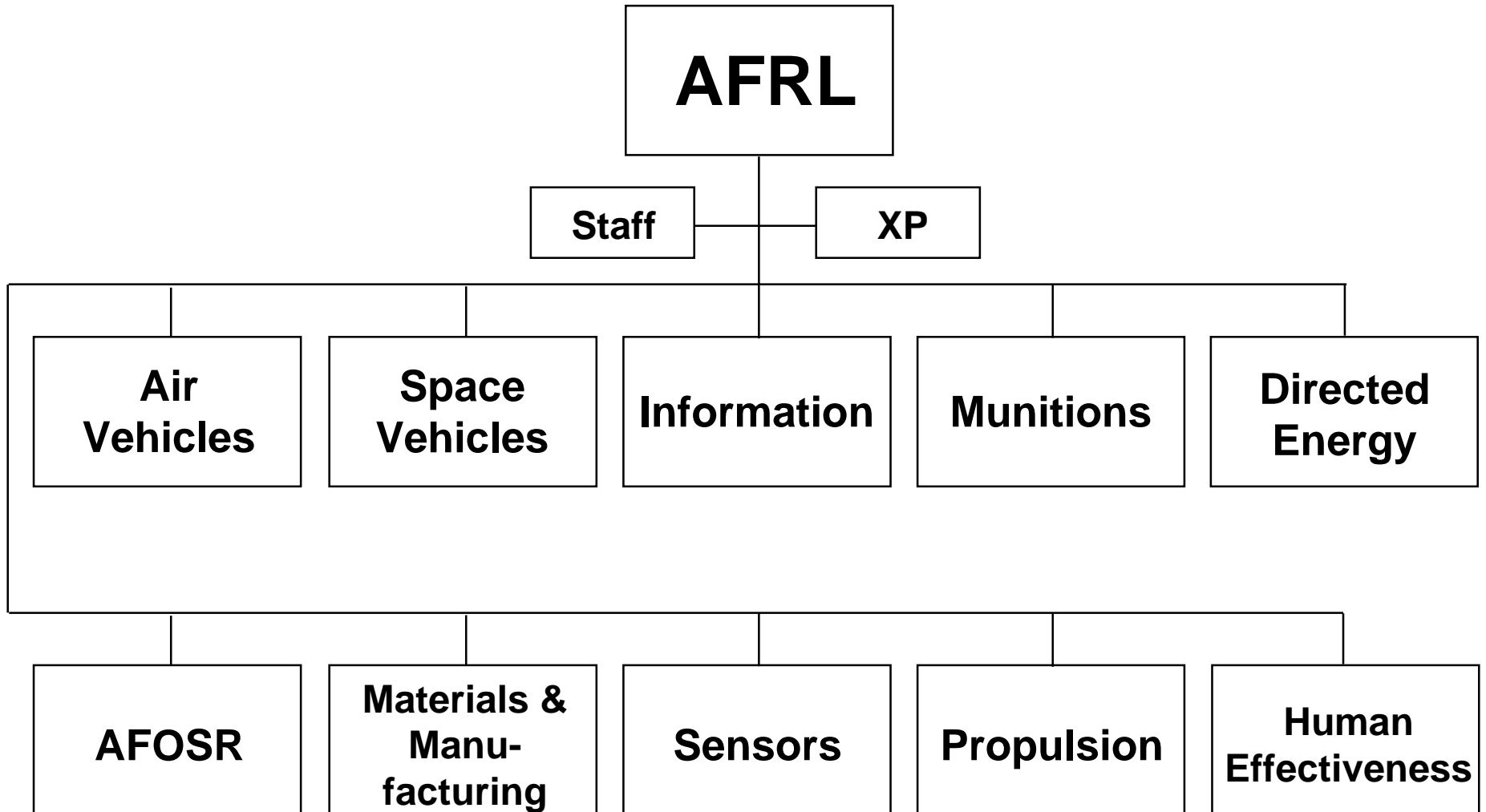
***TO LEAD THE DISCOVERY, DEVELOPMENT, AND INTEGRATION OF AFFORDABLE  
WARFIGHTING TECHNOLOGIES FOR OUR  
AIR AND SPACE FORCES***

## **THE AIR FORCE RESEARCH LABORATORY...**

***AIR FORCE, INDUSTRY, AND UNIVERSITY PEOPLE  
WORKING TOGETHER TO KEEP OUR AIR FORCE  
THE BEST IN THE WORLD***

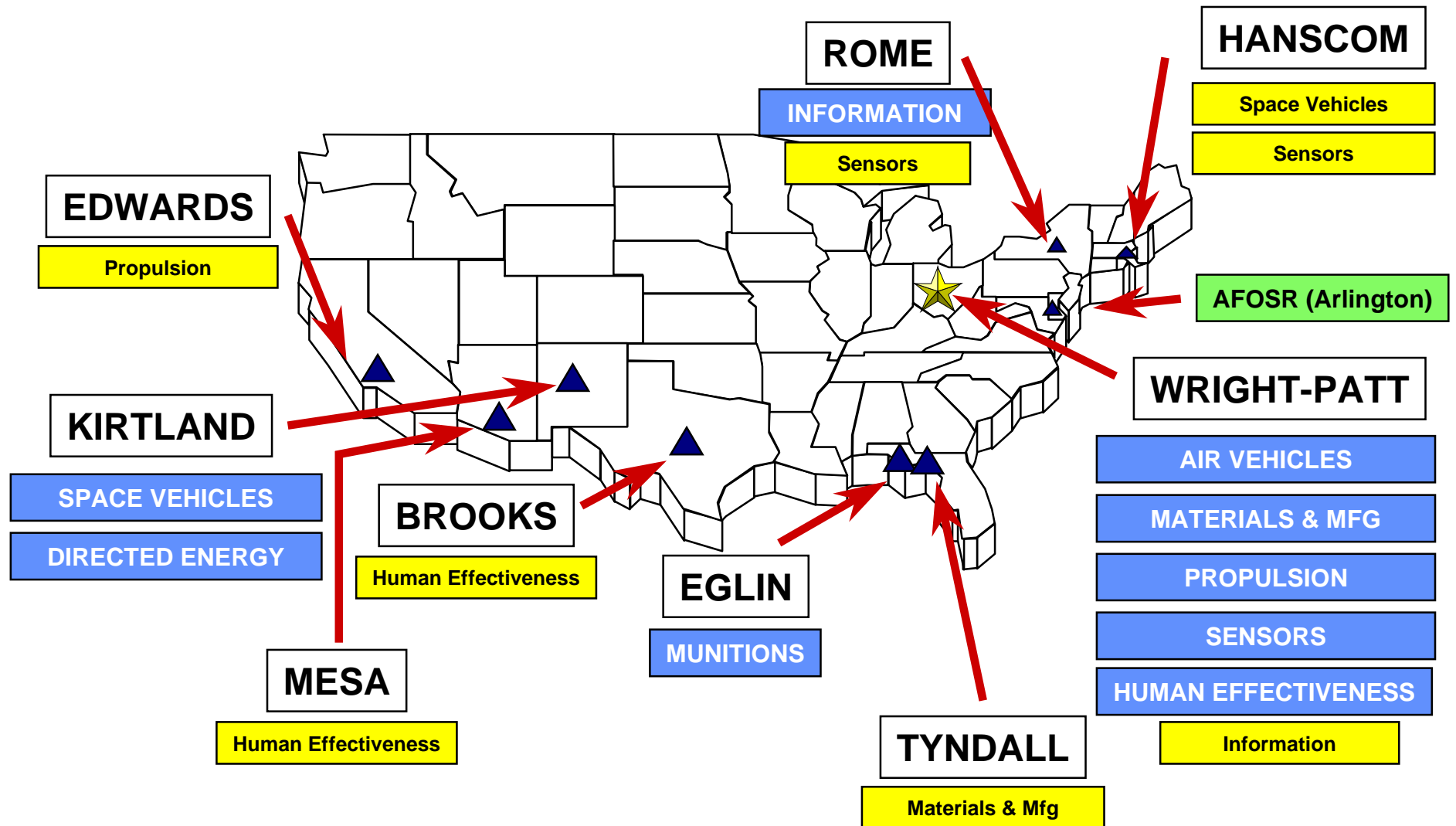


# AFRL TECHNOLOGY DIRECTORATES





# AFRL RESEARCH SITES





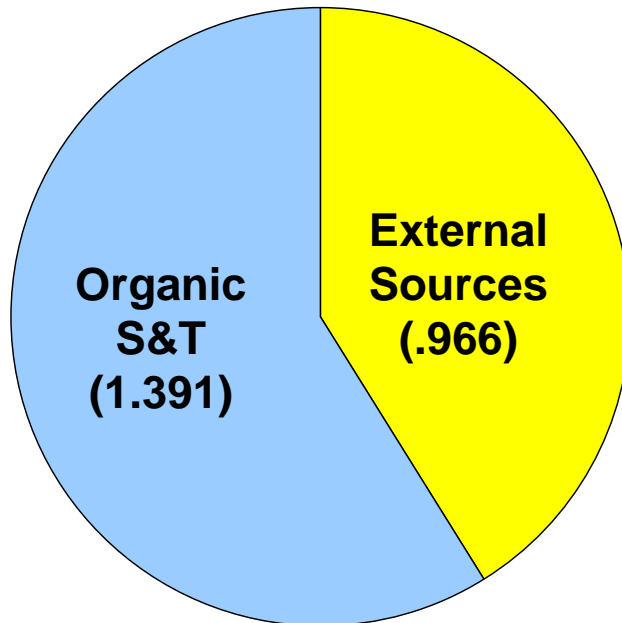
# **OPERATING TENETS**

- **Outsource majority of research/tech development to industry and academia**
- **Perform focused in-house research to maintain core expertise and be a smart outsourcer**
- **Partner with others**
  - **DoD: Army, Navy, DARPA, BMDO, NRO**
  - **Other government agencies: NASA, DOE, DOT, others**
  - **Private sector**
  - **International**



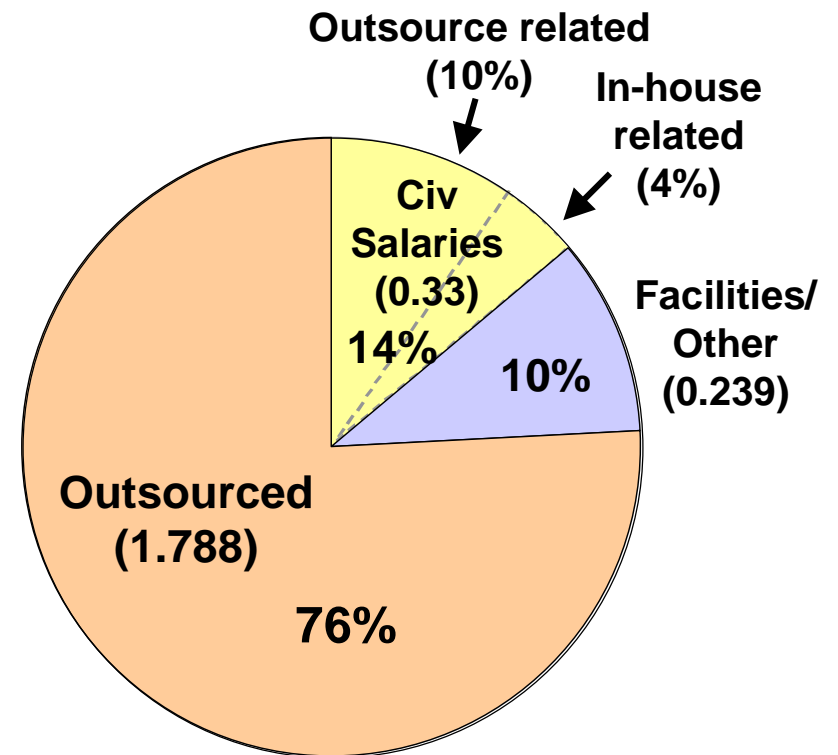
# S&T RESOURCE DISTRIBUTION (FY00)

## Revenue\* (Appropriated)



**\$2.357 Billion**

## Revenue Disposition



**\$2.357 Billion**

\* Organic S&T includes 6.1, 6.2, and 6.3;  
External sources include BMDO, DARPA,  
reimbursables, etc.



# CURRENT ON-SITE CONTRACTOR ACTIVITIES

	Contractor	Activities
R&D	Various Contractors/ Collaborators	Scientific/Technical Investigation On-Site
Facilities Operations	Contractors	Facility Operations
Analytical Support	Support Contractors	Chemical Analysis Characterization Failure Analysis Engineering and Design Data





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# BACKGROUND

- **AFRL workforce has been reduced by over 30% in the 1990s as part of DOD downsizing**
- **More than 30% of remaining government employees are eligible to retire in the next 5 years**
- **About 50% are eligible to retire in the next 6-10 years**



# CHARGE FROM SECAF (Feb 99)

- Study the personnel management for S&T in the Air Force and provide answers to the following:
  - What is the ideal state for managing the people associated with AFRL and what are the characteristics of the ideal AFRL workforce?
  - What is the current state and quality of the people and research associated with AFRL?
  - What role should competitive sourcing, GOCOs, and public-private partnerships play in the labs.
  - What are reasonable, doable, and actionable paths to get from our current state to the ideal state?
- The guiding vision is to enhance and maintain excellence and relevance to the Air Force of its S&T investment into the 21st century.



# **STW - 21 PROCESS**

- **Study group consisted of two components:**
  - **Senior Steering Group (SSG)**
    - **Chaired by AF/ST**
    - **Membership from govt, industry, and academia**
  - **AFRL Tiger Team (TT)**
    - **Led by AFRL Tech Director**
    - **Membership from various parts of AFRL**
- **Process**
  - **SSG and TT collaborated throughout**



# **OPTIONS CONSIDERED (WITH AFRL TIGER TEAM)**

**Option 1: The Full Authority Lab**

**Option 2: Government-Operated, Collaborator-Assisted  
(GOCA)**

**Option 3: Government-Owned, Contractor-Operated  
(GOCO)**

**Option 4: Clean slate**

## **Process**

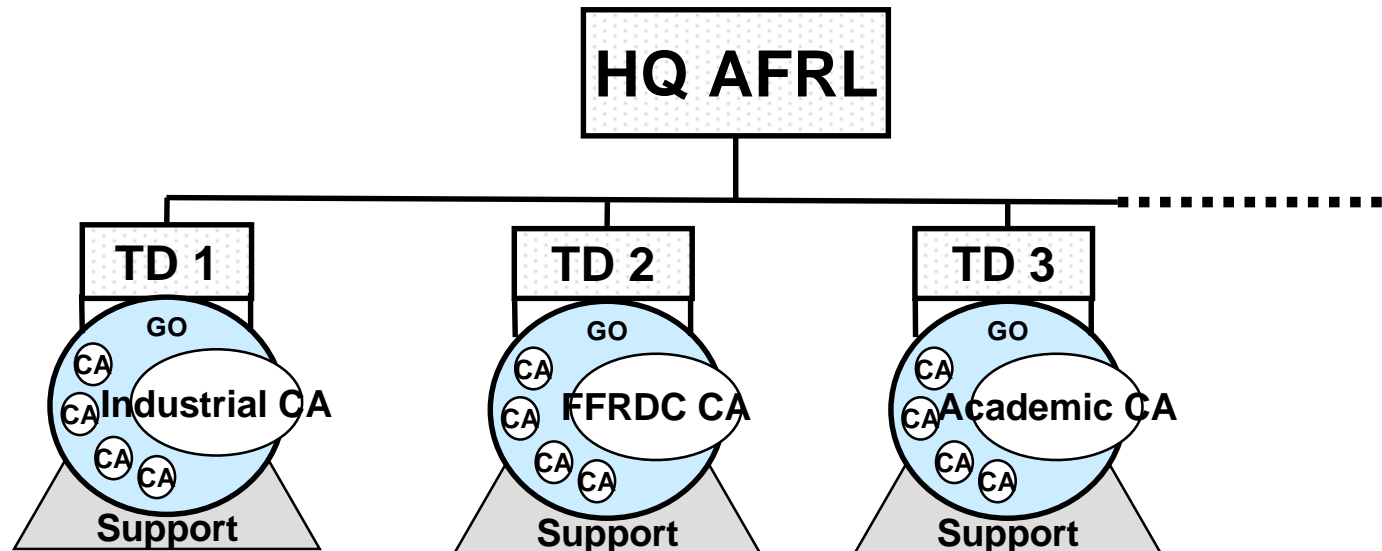
- Reviewed history and lessons learned
- Visited and profiled existing examples of options
- Analyzed each option using computer personnel/cost model
- Debated options at joint Steering Group/Tiger Team meetings



# STW-21 RESULTS

## Implement GOCA:

Continue strategic transformation of AFRL  
begun with Lab Demo



***An integrated team of an excellent cadre of Career Civil Servants with a collection of agile military S&Es and collaborators of high reputation, solidly connected to operational and technical communities.***

**GO-** leadership, corporate knowledge, priorities, fiduciary responsibility, continuity  
**CA -** agility, connectedness, refreshment, depth, focused expertise

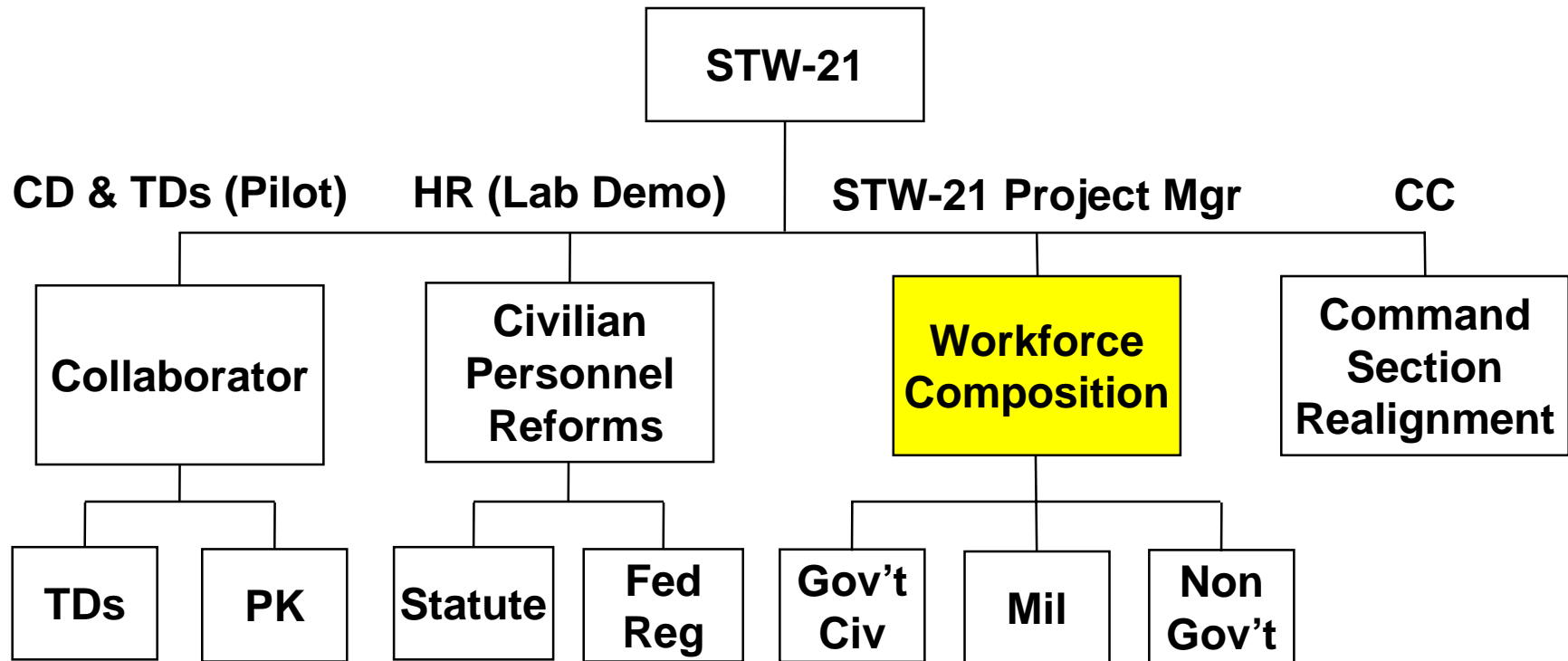


# PURPOSE

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- ➔ • **Discuss AFRL implementation activities**



# WORKFORCE COMPOSITION COMPONENT



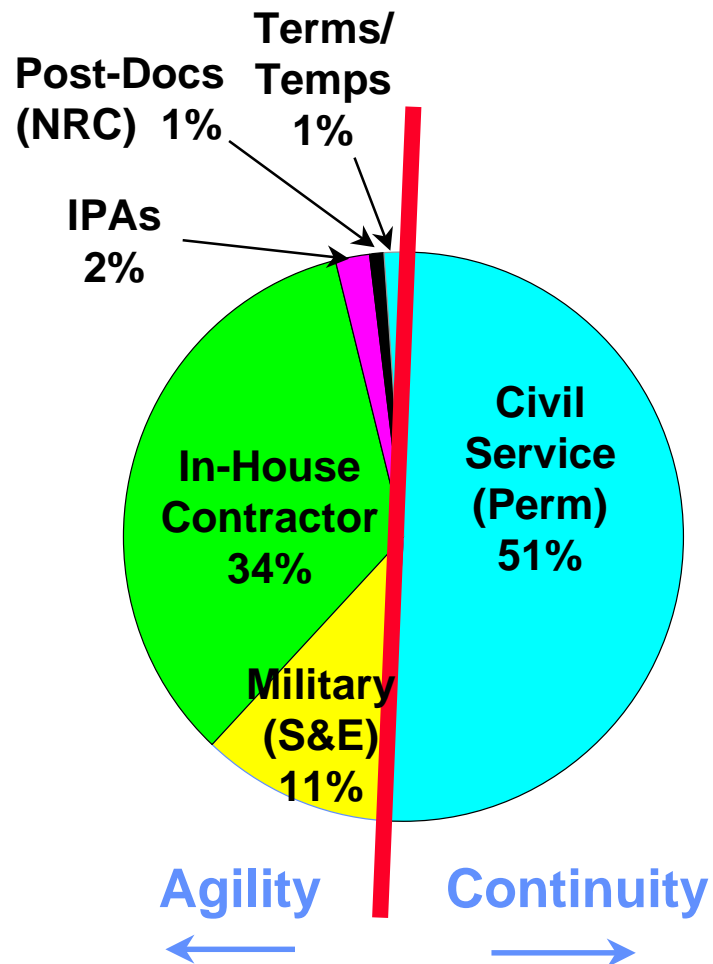
- Industry
- FFRDC
- Academia



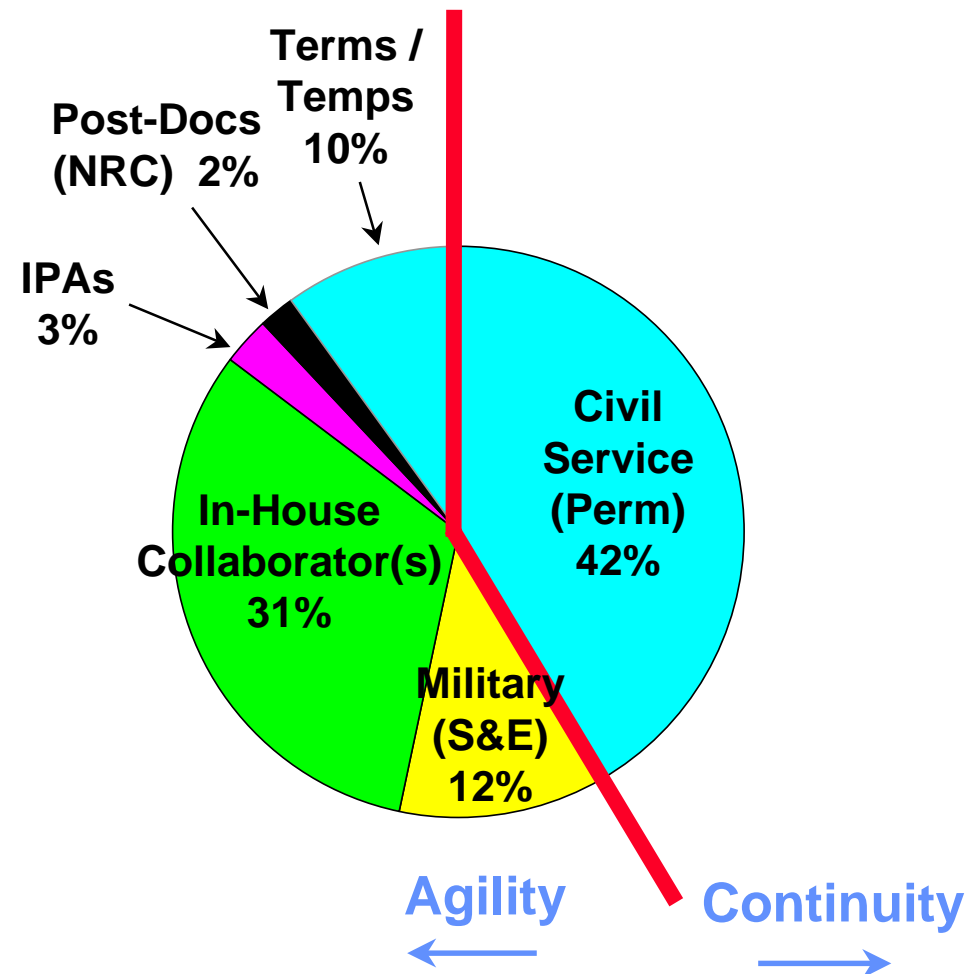


# STW-21 WORKFORCE COMPOSITION

## Current AFRL

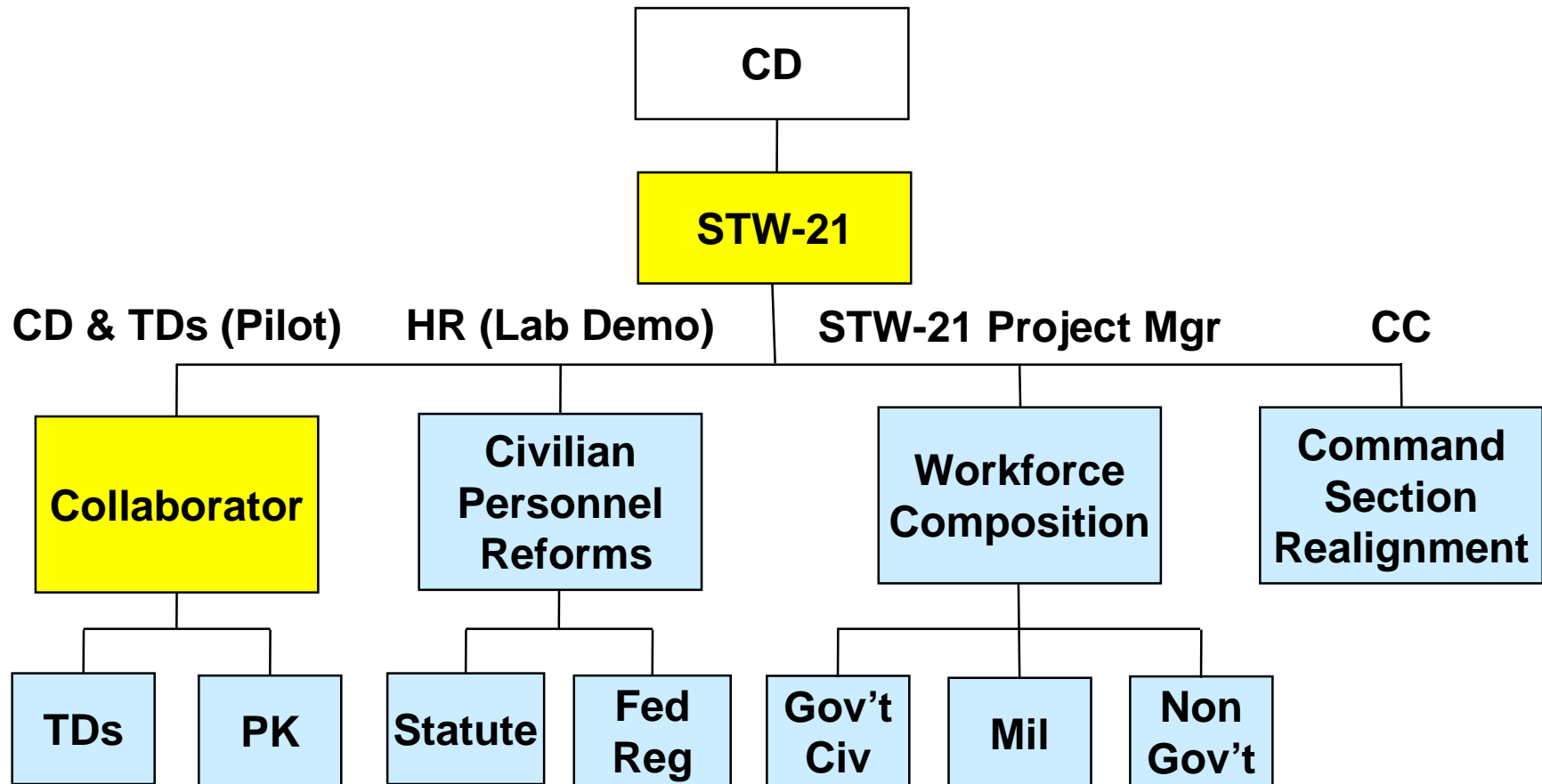


## AFRL Recommendation





# STW-21 COMPONENTS



- Industry
- FFRDC
- Academia

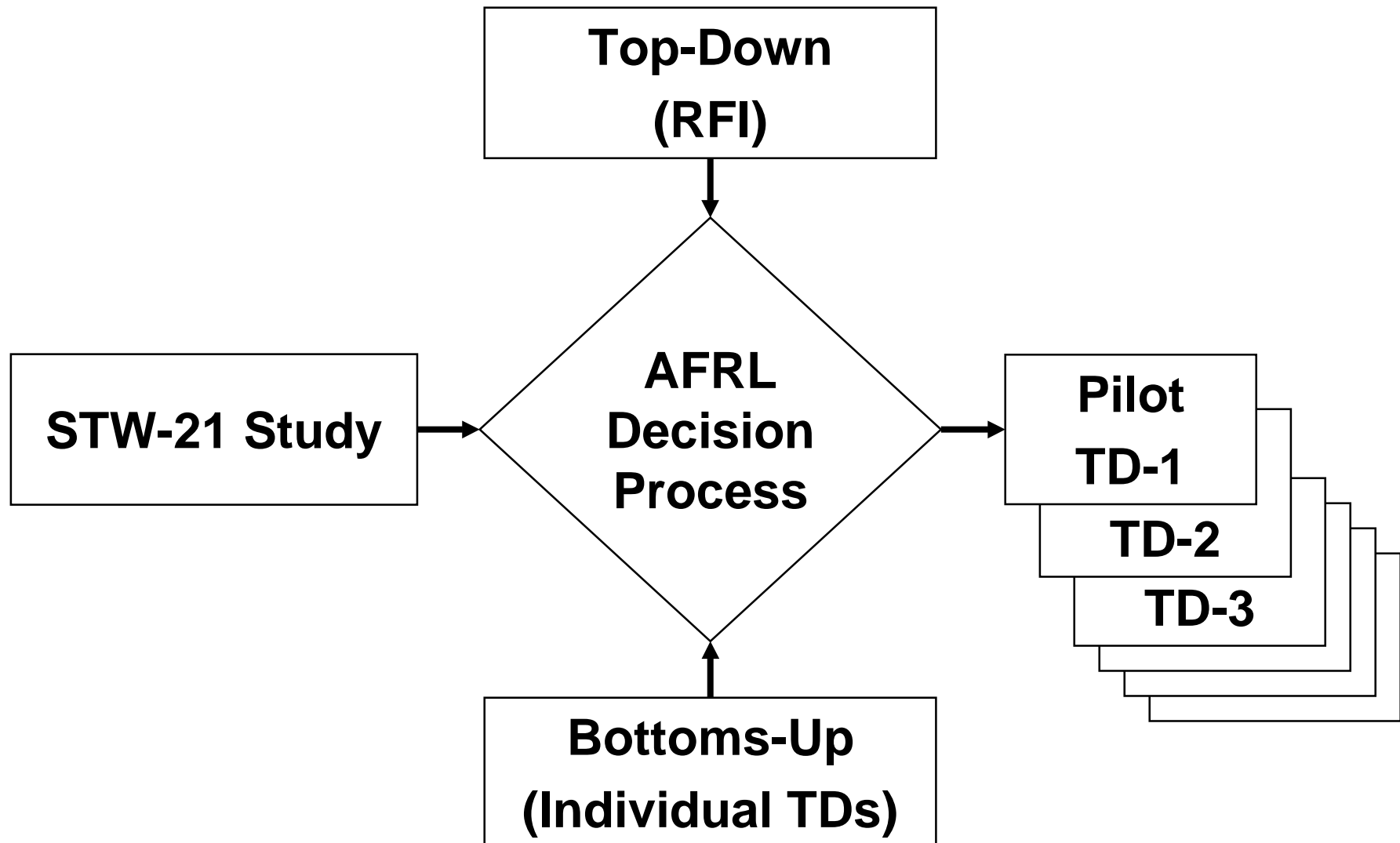


# **COLLABORATOR OBJECTIVE (STW-21 STUDY)**

- **Engage a small number of non-government collaborators with high national reputes to augment AFRL's on-site government technical workforce**
- **Include: industry, universities, and federally funded research and development centers as potential collaborators**



# COLLABORATOR PROCESS





# **COLLABORATOR “TOP-DOWN” PROCESS**

- **Use open 2-way communication**
- **Rationale:**
  - **Seek ideas from all potential sources**
  - **Maintain “open” environment**
- **Steps:**
  - **Release RFI**
  - **Conduct Collaborator Symposium**
  - **Establish STW-21 home page**



# WHAT IS A REQUEST FOR INFORMATION (RFI)?

- **Purpose: Solicit Information from the Public**
- **Responses are Utilized in the Government's Preparation of an Implementation Strategy**

## **Expectation of STW-21 RFI**

- **To Provide AFRL with Suggested Collaborator Approaches**

**An RFI IS NOT a Request for Proposal (RFP). Response to this request is on a voluntary basis and response will not impact any future RFPs.**



# **RFI ELEMENTS**

- **What TD(s) do you have interest in?**
- **What is your expertise?**
- **How do you rank nationally?**
- **What kind of on-site collaborative arrangement could you envision?**
- **What would it take for you to establish an on-site presence?**
- **What impediments do you envision?**
- **Are there non-on site collaboration initiatives of interest?**
- **What are they?**



# **COLLABORATOR SYMPOSIUM**

- **Purpose:** Provide forum for explanation (and Q&A) of STW-21 collaboration to all interested parties
- **Format:**

**Location:** David H. Ponitz Sinclair Center, Dayton, Ohio

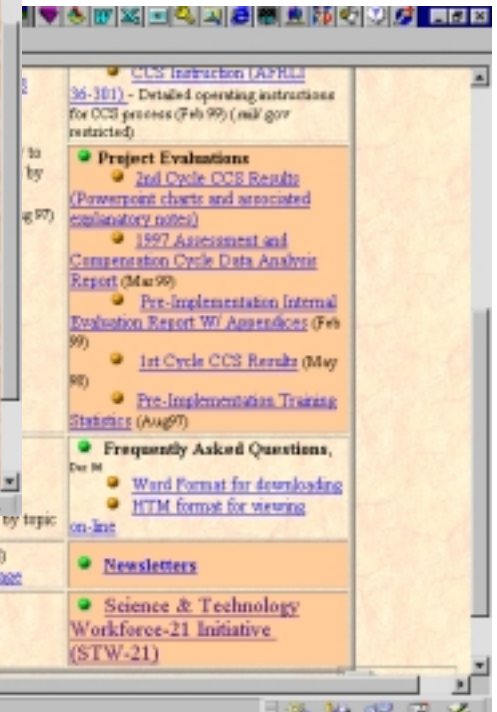
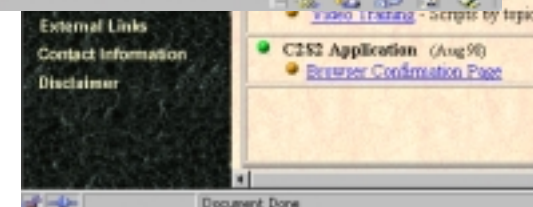
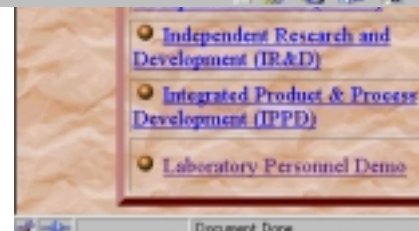
**Date:** 14 Feb 00

- **Advertisement:** RFI and web page





# STW-21 WEB PAGE



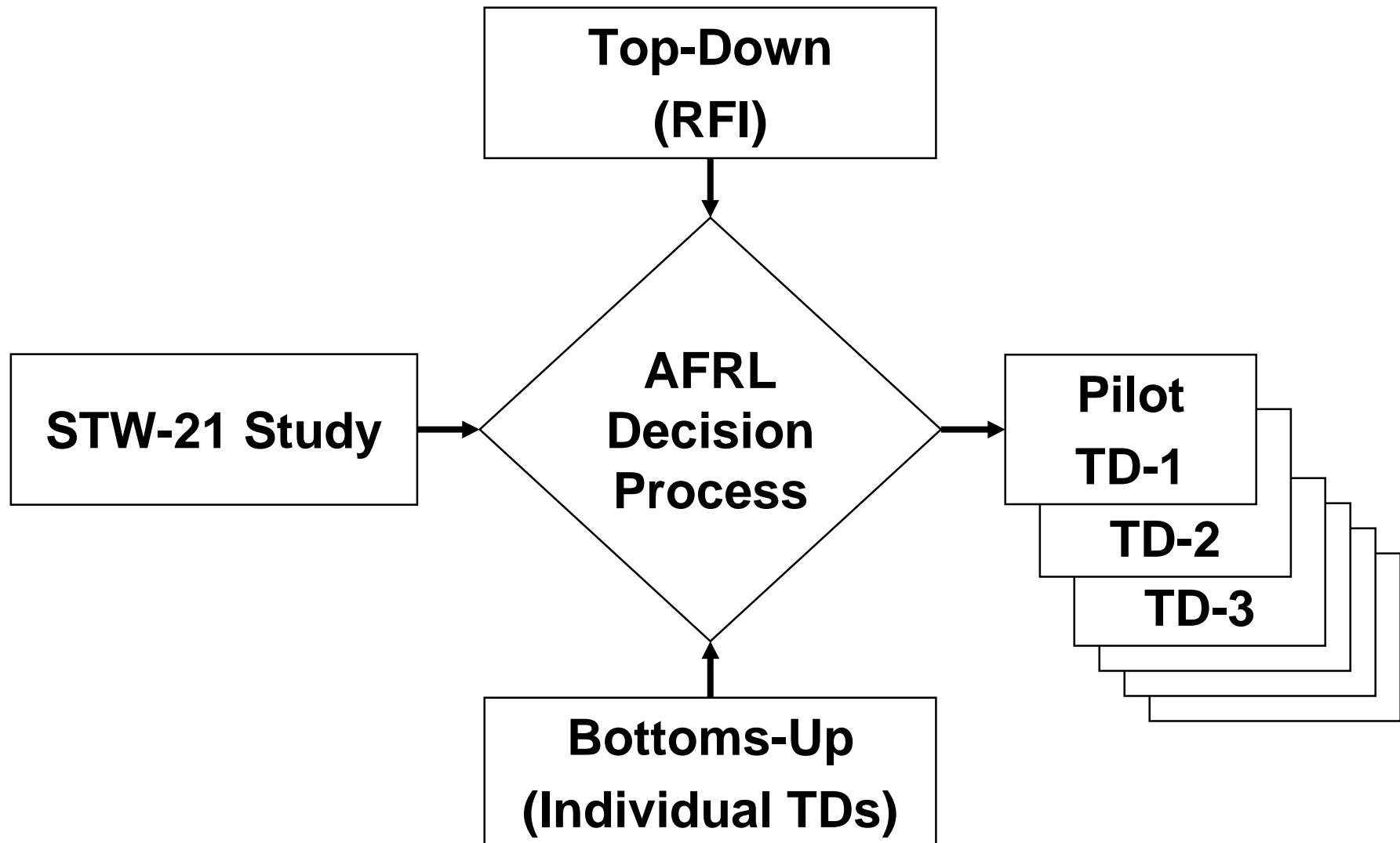


# **STW-21 RFI PROCESS**

- **Solicit suggested collaboration approaches**
- **RFI responses submitted to HQ AFRL**
  - Responses collected and distributed to individual technical directorates (TD)
  - Receipt of individual responses will be acknowledged
- **Each TD will review responses for appropriate implementation strategies**
  - Strategies will vary based on individual organizational needs
  - Implementation will be evolutionary and phased in over time to meet individual TD needs
  - Questions may be directed to individual STW-21 contacts after 1 May 2000



# COLLABORATOR PROCESS





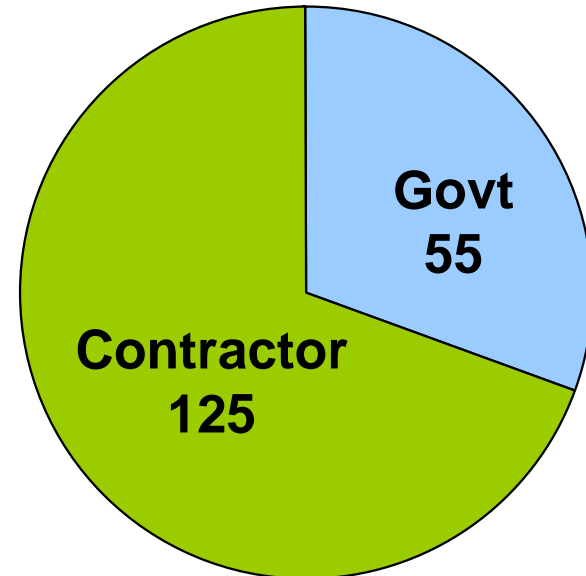
# **AFRL/HEA COLLABORATORY**

- **AFRL/HEA CORE BUSINESS: Distributed Mission Training**
  - **Significant in-house facilities**
- **Industry and academia view lab as a shared testbed enabling them to try new technologies and methods**
- **Industry brings equipment, expertise and funding**
- **Protection of proprietary and intellectual information and technology is key**
  - **Non-disclosure agreements, and on special occasions “rope off” part of the testbed**



# **SAMPLE OF COLLABORATORY PARTNERS**

- **Raytheon, Boeing, Lockheed-Martin (prime & subs)**
- **Evans and Sutherland**
- **Silicon Graphics**
- **MultiGen/Paradigm**
- **Motorola**
- **Aechelon**
- **Arizona State University**
- **SAIC**
- **Original Sim**
- **GTE**
- **Advanced Training Systems Inc.**
- **CEOS**



***Critical Mass of Intellectual Expertise and Experience***



# LEVERAGING INDUSTRIAL PARTNERS

<u>Company</u>	<u>Contribution</u>	<u>Amount (\$K)</u>
Paradigm	Databases	53
Aechelon	Databases	150
CACI	Eng Support	25
EDL Displays	Displays	15
CGCC	Graphics Computers	32
Barco	Projectors	125
Lockheed Martin	IG's/Database	3,160
E & S	IG's	2,360
Silicon Graphics	IG's/Database/Misc	4,992
MultiGen	Software	36
Wind River	Site License	110
<u>Division Inc</u>	<u>S/W Development</u>	<u>14</u>
Total Estimated Contributions Exceed		\$11M



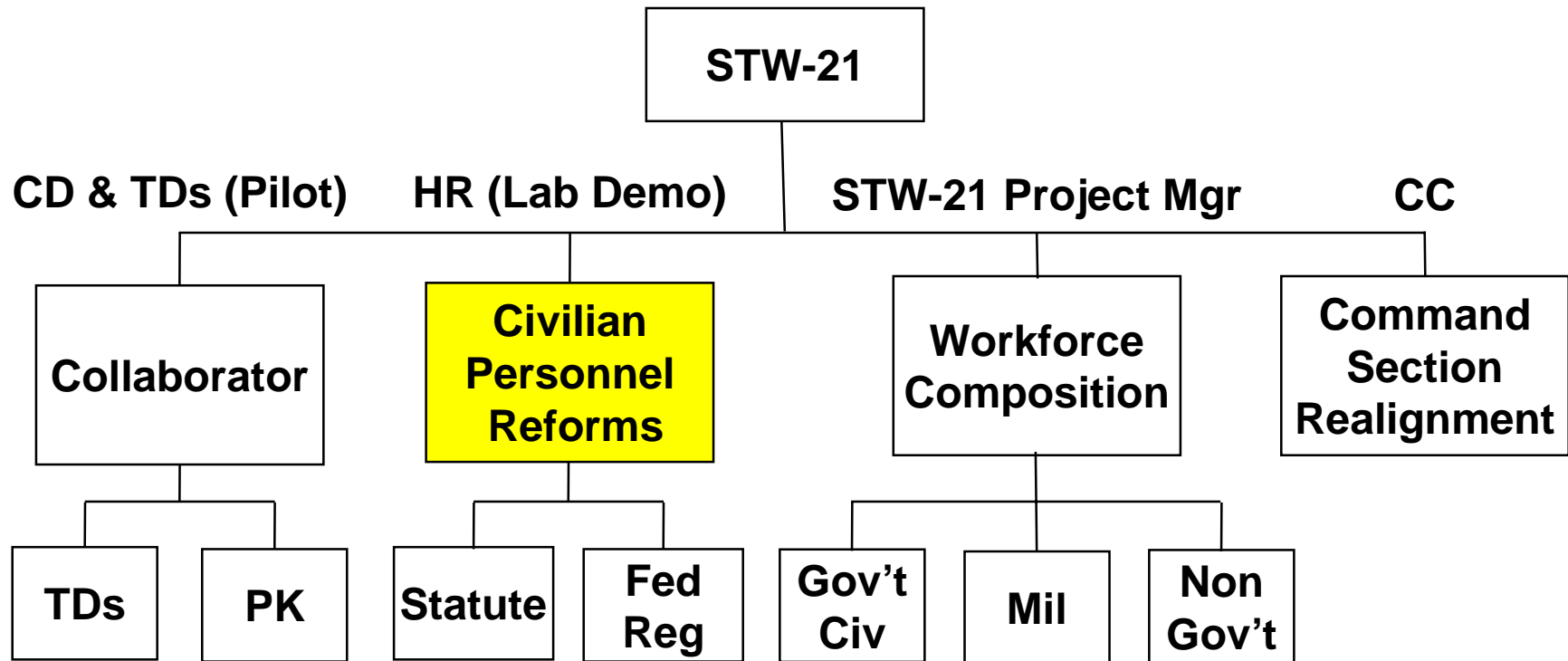
# SPACE VEHICLES INDUSTRY FELLOWS

- **Industry researchers work one year with AFRL researchers at AFRL Space Vehicles Directorate**
- **Includes Professional Enrichment Program**
- **Up to six will be chosen in 2000**
- **50-50 Cost Share with industry**





# CIVILIAN PERSONNEL REFORMS COMPONENT

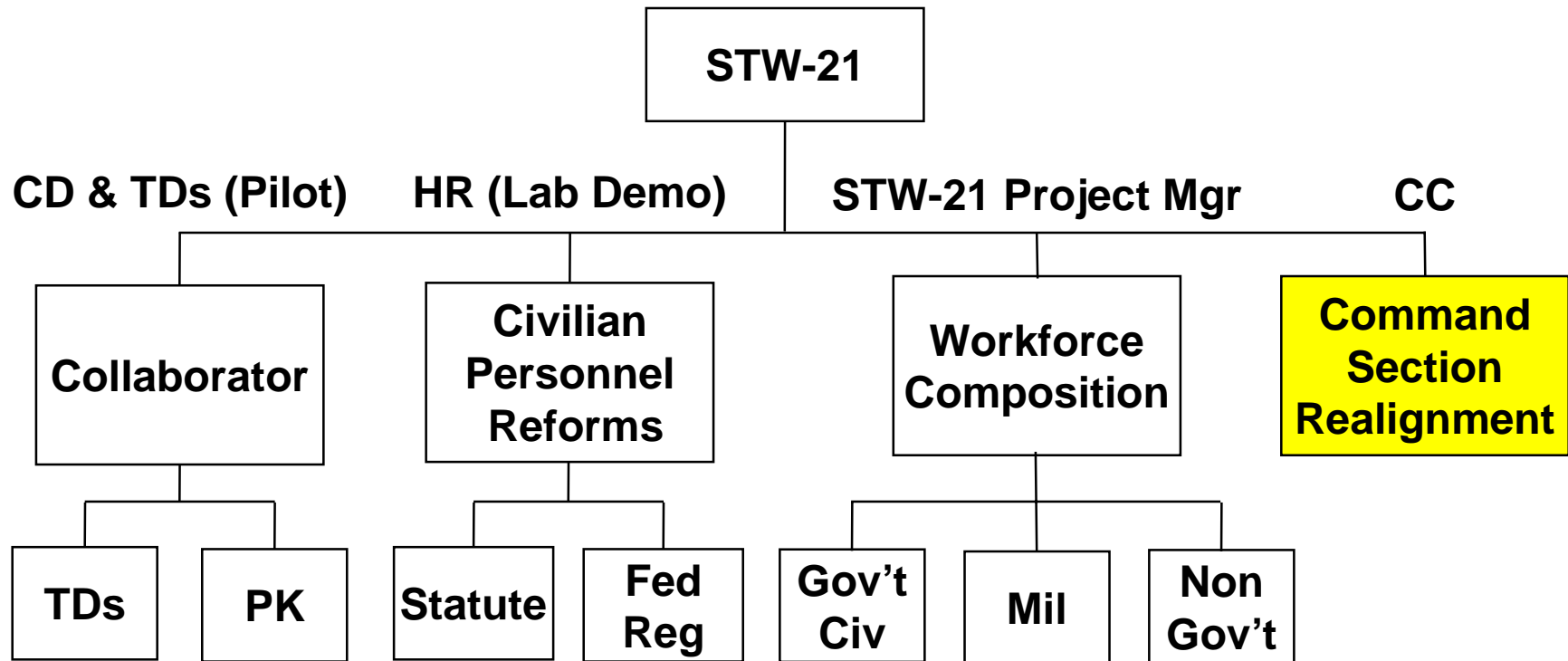


- Industry
- FFRDC
- Academia





# COMMAND SECTION REALIGN COMPONENT



- Industry
- FFRDC
- Academia



# SUMMARY

- **Activity underway on all fronts**
  - **Project office formed**
  - **RFI released for “collaboration ideas”**
  - **Personnel reform packages submitted**
  - **TDs baselined for workforce composition**
  - **AFRL Command Section being realigned**
- **AFMC/CC and SecAF remain engaged and supportive**



**"THE FIRST ESSENTIAL OF AIR  
POWER IS PRE-EMINENCE IN RESEARCH"**

**GENERAL H. H. ARNOLD, 1944**